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United States Patent [19][11] **Patent Number:** **5,957,668****Moody**[45] **Date of Patent:** **Sep. 28, 1999**[54] **BRAKE ACTUATION MEANS FOR A
ROTARY PUMP SYSTEM**5,064,351 11/1991 Hamey et al. 417/222
5,358,036 10/1994 Mills 417/214[75] **Inventor:** **Paul E. Moody, Barrington, R.I.****FOREIGN PATENT DOCUMENTS**[73] **Assignee:** **The United States of America as
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Navy, Washington, D.C.**1-285692 11/1989 Japan 417/405
3-47490 2/1991 Japan 417/42[21] **Appl. No.:** **08/605,290**[22] **Filed:** **Jan. 17, 1996**[51] **Int. Cl.⁵** **F04B 17/00**[52] **U.S. Cl.** **417/326; 417/15; 417/42;
417/405; 417/409**[58] **Field of Search** **417/15, 42, 214,
417/319, 326, 405, 406, 407, 409**[56] **References Cited****U.S. PATENT DOCUMENTS**2,879,716 3/1959 Meredew et al. 417/405
3,044,262 7/1962 Chadwick et al. 417/409
3,375,997 4/1968 Gist, Jr. 224/17.11
3,565,286 2/1971 Latham, Jr. 417/426*Primary Examiner*—Timothy Thorpe
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Lall; James M. Kasischke[57] **ABSTRACT**

A rotary pump system includes a rotary pump, a turbine for driving the pump, and a coupling interconnecting a shaft of the turbine and a shaft of the pump. A speed monitoring system determines rotational speed of the pump shaft, is programmed with selected speeds for the pump during operation, and is adapted to send a signal responsive to a difference between the determined speed and the programmed speed. A brake is engageable with the coupling, and a brake valve is adapted to receive the signal and, in response thereto, to operate the brake to conform the speed of the pump to the programmed speed.

12 Claims, 3 Drawing Sheets